Caching

micro-23

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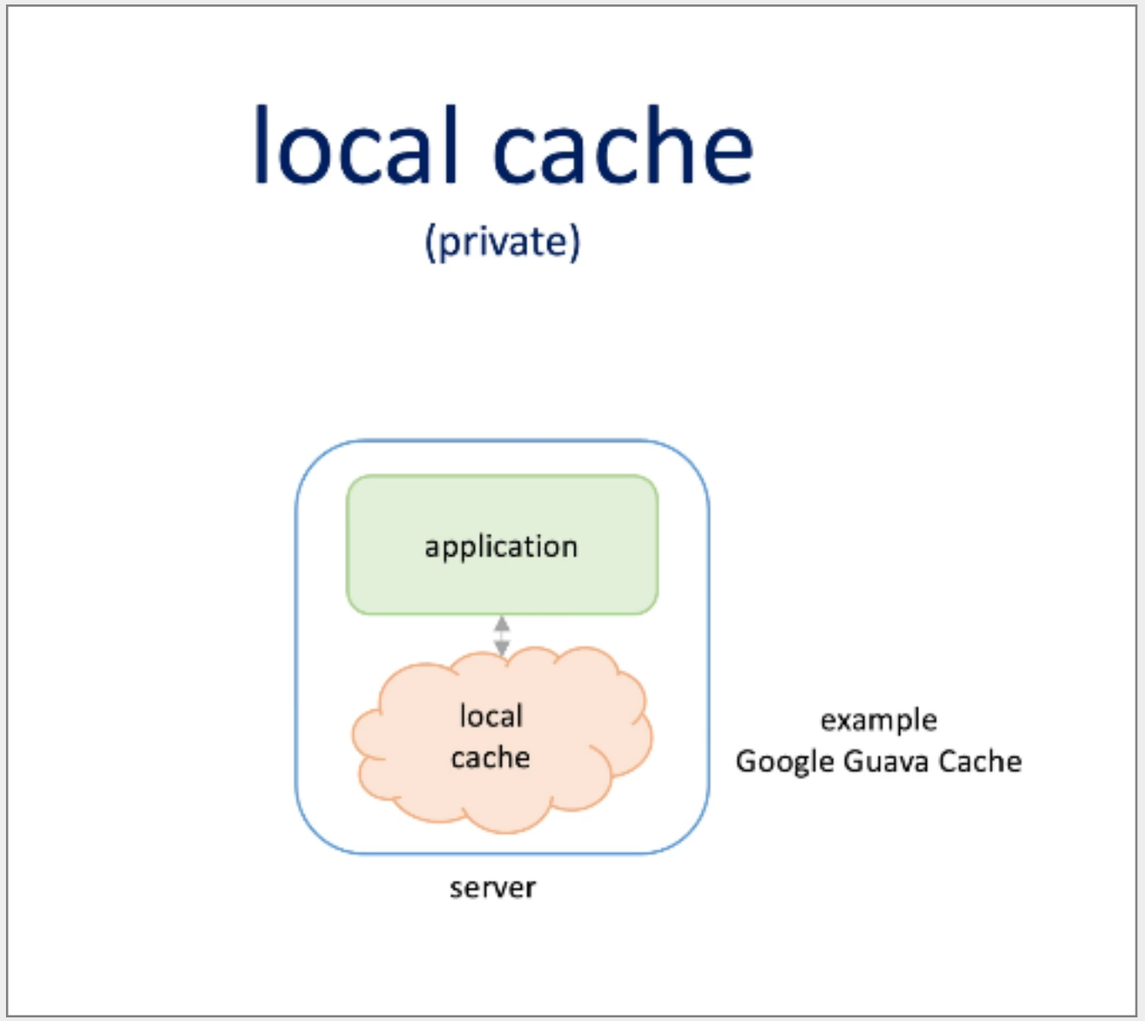
Designed in LaTeX

- Rationale of Caching
- Eviction policies
- Caching patterns

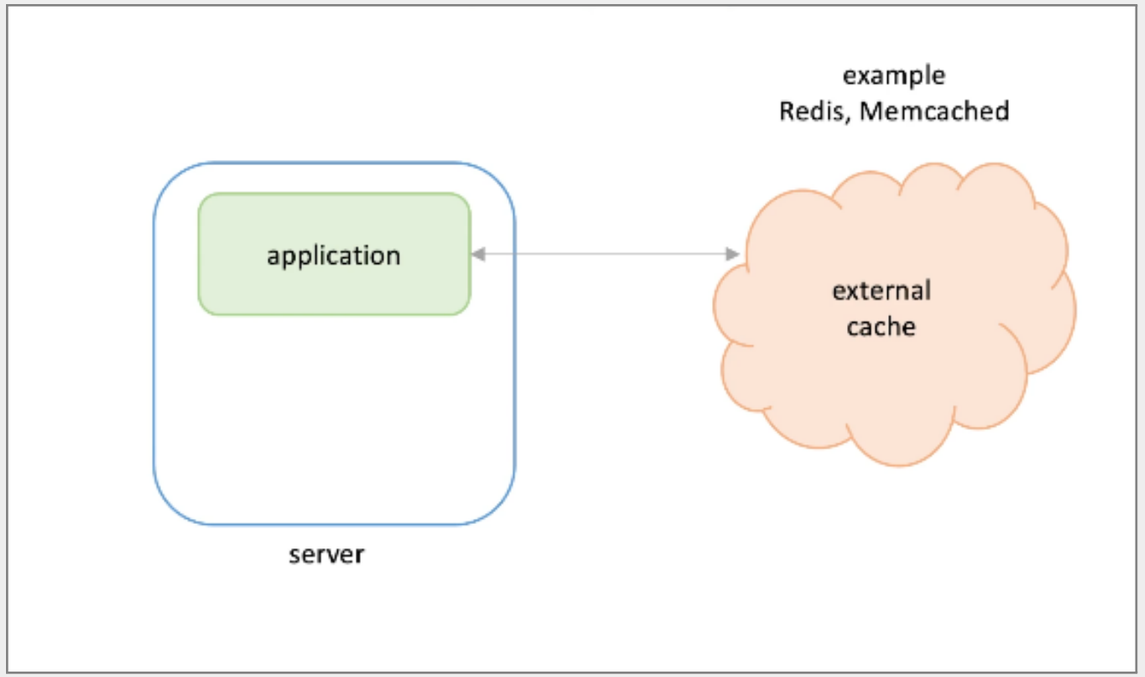
Chapter #1:

Rationale of Caching

Local Cache


local cache
(private)
application
local
cache
server
example
Google Guava Cache

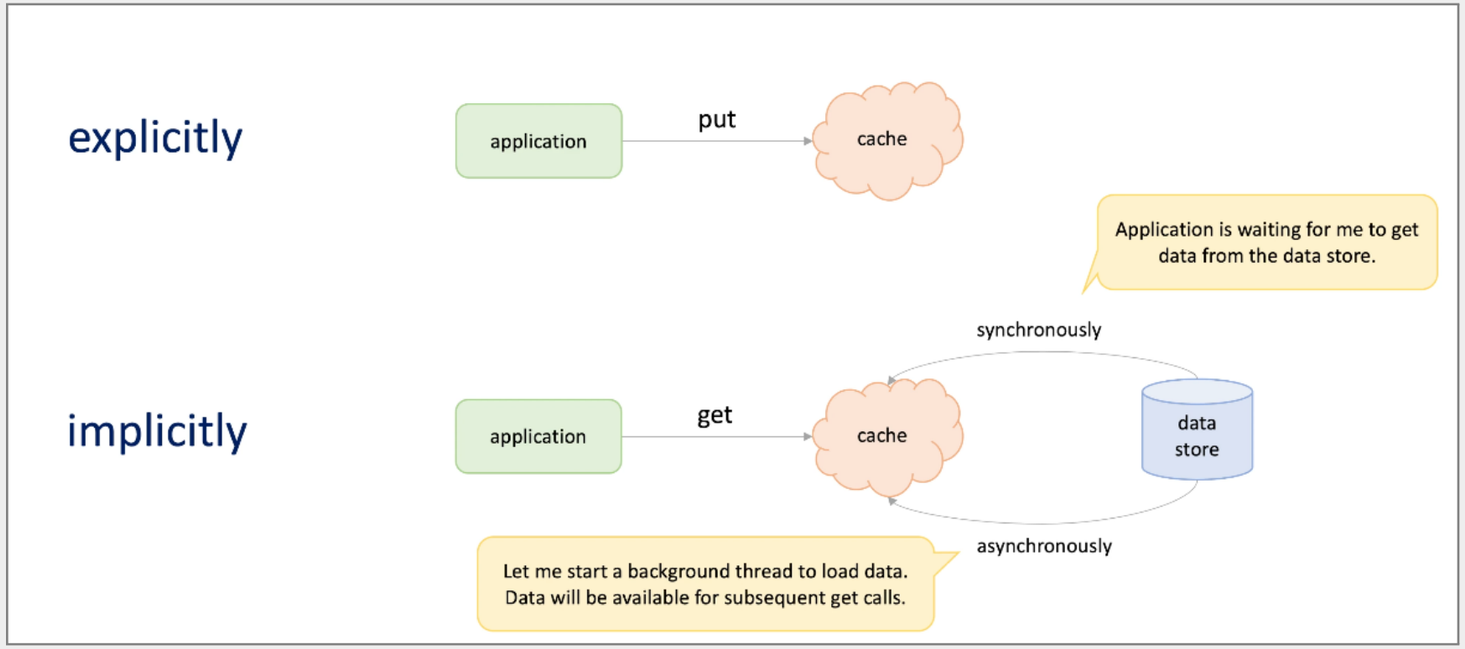
External Cache



Chapter #2:

Eviction policies

How do we add data to cache?

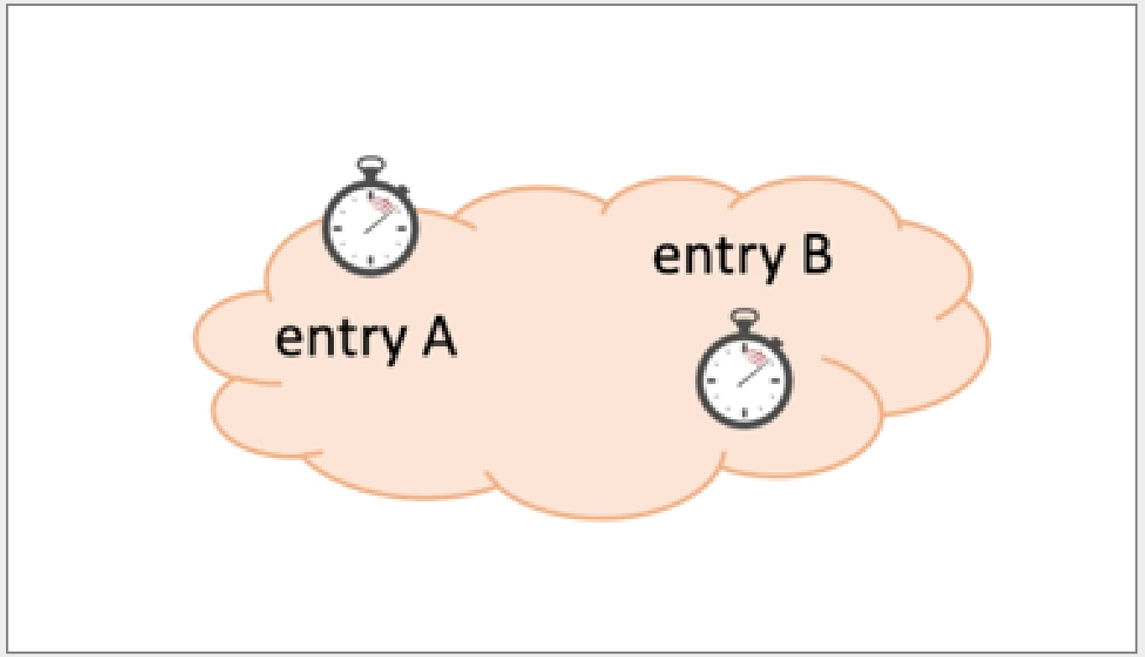


LRU vs. LFU

"Least Recent Used (LRU) means evict entries that haven't been used recently."

"Least Frequently Used (LFU) means evic entries that were used least often."

TTL



Active vs. Passive expiration

“Active - when entry is accessed.”

“Passive - Background thread that runs at regular intervals.”

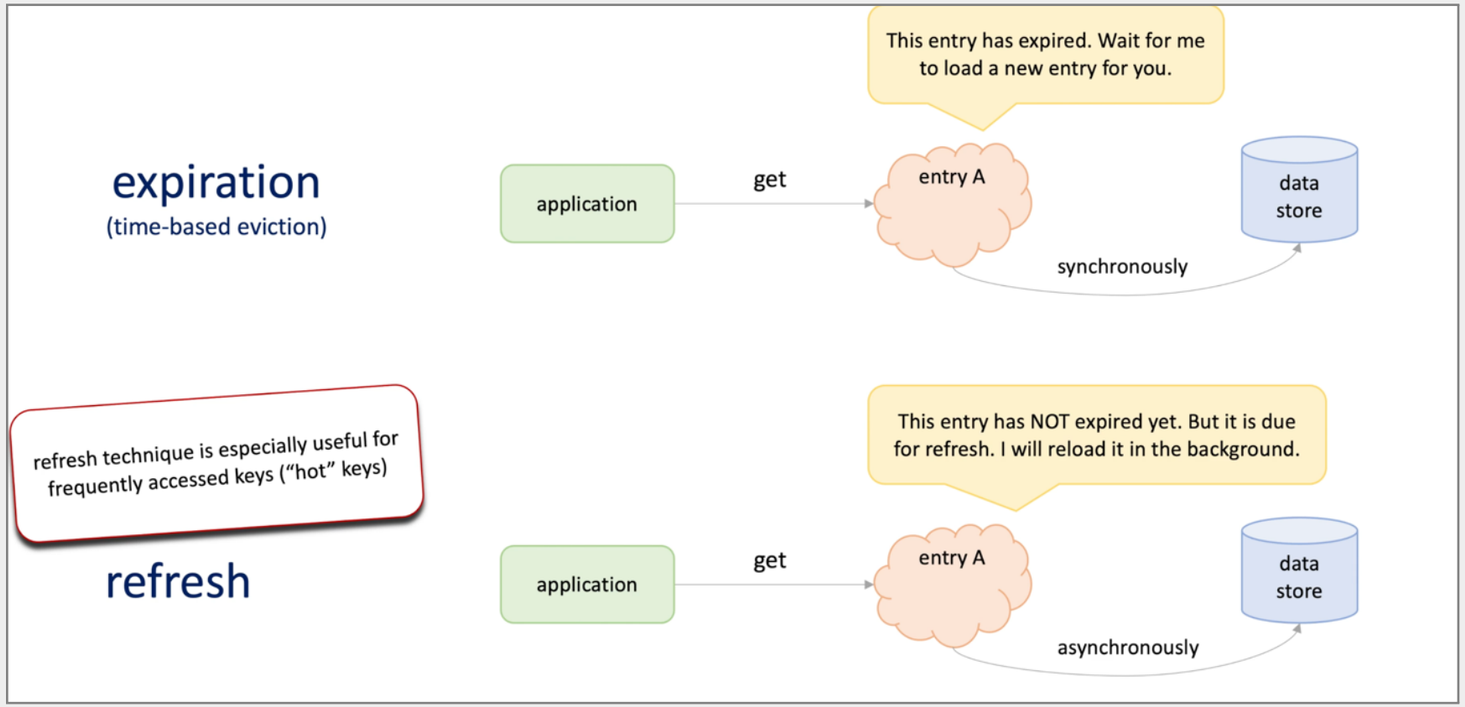
Explicitly remove-based eviction

```
class ExplicitEviction {

  private final Cache cache;
  private final Client client;

  public static void main(String[] args) {
    this.cache.put(
      1L,
      new Book("Martin Fowler", "Refactoring", "0134757599")
    );
    this.client.book(1L); // from cache
    this.cache.evict(1L);
    this.client.book(1L); // from db
  }
}
```

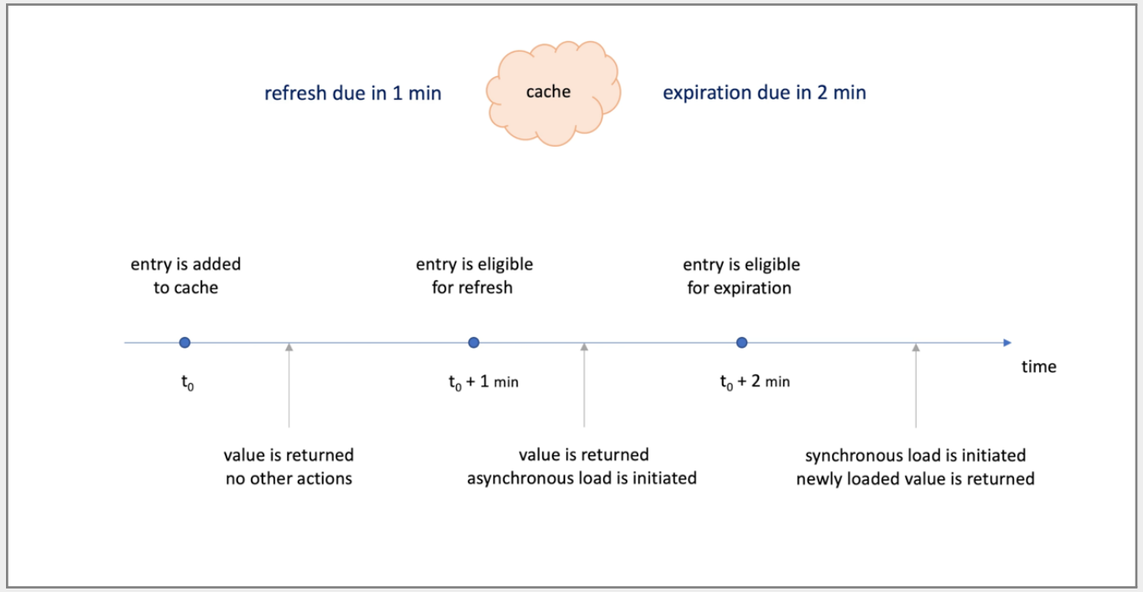
Chapter #3:

Caching patterns

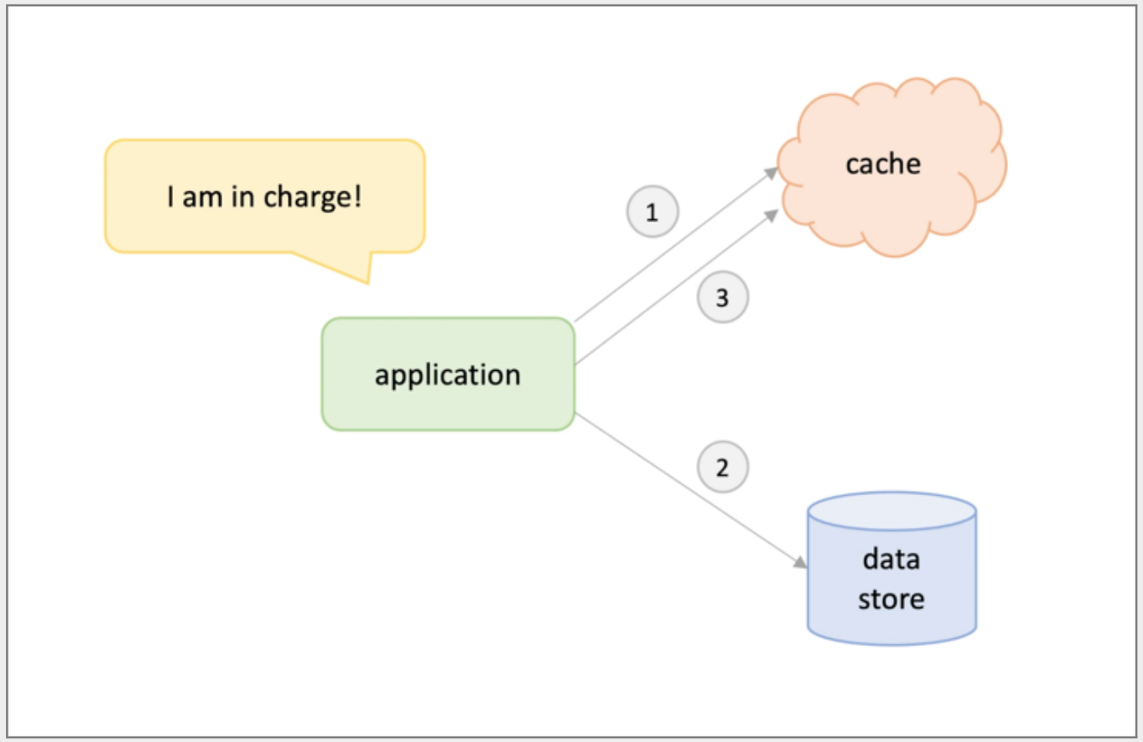
Expiration vs. Refresh



Refresh-ahead



Cache-aside



Read/Write through Cache